



**STATE OF TENNESSEE  
DEPARTMENT OF HEALTH  
ENVIRONMENTAL LABORATORIES**

TDH: Lab Services JRL  
Lab Services - Jackson Regional Lab  
Jackson, TN 38301  
731-426-0686

TDH: Lab Services KRL  
Lab Services - Knoxville Regional Lab  
Knoxville, TN 37920  
865-549-5201

TDH: Lab Services NCL  
Lab Services - Nashville Central Lab  
Nashville, TN 37243  
615-262-6300

**Sent To:** Geoff Klein  
TDEC-DWS  
200 East Race St  
Knoxville, TN 37763

**Lab ID:** N00004362  
Nashville Central Laboratory

**Sampling Agency:** TDEC: Division of Water Supply

**Billing Code:** 327.39-12

This is to certify that the following results were determined using good laboratory practices and in accordance with federal or state approved methodologies.

  
Analytical Supervisor

Lab-Sample Number: N00004362001  
Project Name:  
Sample Description: KINGSTON WTP  
Sampler Project Name:  
Project Site No.: RAW  
Station No.:  
Date/Time Collected: 04/06/2009 10:05  
Sampler's Name: GEOFF KLEIN  
County: ROANE - 73  
Sample Matrix: Water  
EFO: Knoxville  
Sampling Agency: TDEC-DWS  
Billing Code: 327.39-12  
Send Report To: TDEC-DWS  
Agency Invoiced: TDEC-DWS  
Priority Date:  
Date/Time Received: 04/06/2009 12:40  
Received By: L Barrociere

**Field Determinations**

pH:  
Chlorine, residual:  
Conductivity:  
Temperature:  
Dissolved Oxygen:  
Other:  
Flow: CFS

TEST: Alkalinity, Total			METHOD: EPA 310.2			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Alkalinity	65	mg/L	3.8	10	P Leathers	4/7/2009

TEST: Hardness, Calcium			METHOD: SM 3500-Ca D			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Calcium hardness	54	mg/L	0.7	1	P Leathers	4/7/2009

J - Estimated value between MDL and MQL  
MDL - Method Detection Limit  
MQL - Method Quantitation Limit  
U - Undetected

Lab-Sample Number: N00004362002  
Project Name:  
Sample Description: KINGSTON WTP  
Sampler Project Name:  
Project Site No.: FINISH  
Station No.:  
Date/Time Collected: 04/06/2009 10:10  
Sampler's Name: GEOFF KLEIN  
County: ROANE - 73  
Sample Matrix: Water  
EFO: Knoxville  
Sampling Agency: TDEC-DWS  
Billing Code: 327.39-12  
Send Report To: TDEC-DWS  
Agency Invoiced: TDEC-DWS  
Priority Date:  
Date/Time Received: 04/06/2009 12:40  
Received By: L Barrociere

**Field Determinations**

pH:  
Chlorine, residual:  
Conductivity:  
Temperature:  
Dissolved Oxygen:  
Other:  
Flow: CFS

TEST: Alkalinity, Total			METHOD: EPA 310.2			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Alkalinity	65	mg/L	3.8	10	P Leathers	4/7/2009

TEST: Hardness, Calcium			METHOD: SM 3500-Ca D			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Calcium hardness	52	mg/L	0.7	1	P Leathers	4/7/2009

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit

U - Undetected

Lab-Sample Number: N00004362003  
Project Name:  
Sample Description: ROCKWOOD WTP  
Sampler Project Name:  
Project Site No.: RAW  
Station No.:  
Date/Time Collected: 04/06/2009 10:45  
Sampler's Name: GEOFF KLEIN  
County: ROANE - 73  
Sample Matrix: Water  
EFO: Knoxville  
Sampling Agency: TDEC-DWS  
Billing Code: 327.39-12  
Send Report To: TDEC-DWS  
Agency Invoiced: TDEC-DWS  
Priority Date:  
Date/Time Received: 04/06/2009 12:40  
Received By: L Barrociere

**Field Determinations**

pH:  
Chlorine, residual:  
Conductivity:  
Temperature:  
Dissolved Oxygen:  
Other:  
Flow: CFS

TEST: Alkalinity, Total		METHOD: EPA 310.2				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Alkalinity	83	mg/L	3.8	10	P Leathers	4/7/2009

TEST: Hardness, Calcium		METHOD: SM 3500-Ca D				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Calcium hardness	61	mg/L	0.7	1	P Leathers	4/7/2009

J - Estimated value between MDL and MQL  
MDL - Method Detection Limit  
MQL - Method Quantitation Limit  
U - Undetected

**Lab-Sample Number:** N00004362004  
**Project Name:**  
**Sample Description:** ROCKWOOD WTP  
**Sampler Project Name:**  
**Project Site No.:** FINISH  
**Station No.:**  
**Date/Time Collected:** 04/06/2009 10:50  
**Sampler's Name:** GEOFF KLEIN  
**County:** ROANE - 73  
**Sample Matrix:** Water  
**EFO:** Knoxville  
**Sampling Agency:** TDEC-DWS  
**Billing Code:** 327.39-12  
**Send Report To:** TDEC-DWS  
**Agency Invoiced:** TDEC-DWS  
**Priority Date:**  
**Date/Time Received:** 04/06/2009 12:40  
**Received By:** L Barrociere

**Field Determinations**

**pH:**  
**Chlorine, residual:**  
**Conductivity:**  
**Temperature:**  
**Dissolved Oxygen:**  
**Other:**  
**Flow:** CFS

TEST: Alkalinity, Total			METHOD: EPA 310.2			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Alkalinity	72	mg/L	3.8	10	P Leathers	4/7/2009

TEST: Hardness, Calcium			METHOD: SM 3500-Ca D			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Calcium hardness	59	mg/L	0.7	1	P Leathers	4/7/2009

**J - Estimated value between MDL and MQL**  
**MDL - Method Detection Limit**  
**MQL - Method Quantitation Limit**  
**U - Undetected**



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**Lab ID:** N00004362  
Nashville Central Laboratory

**Sampling Agency:** TDEC: Division of Water Supply

**Billing Code:** 327.39-12

This is to certify that the following results were determined using  
good laboratory practices and in accordance with federal or state  
approved methodologies.

Analytical Supervisor

**Lab-Sample Number:** N00004362001  
**Project Name:**  
**Sample Description:** KINGSTON WTP  
**Sampler Project Name:**  
**Project Site No.:** RAW  
**Station No.:**  
**Date/Time Collected:** 04/06/2009 10:05  
**Sampler's Name:** GEOFF KLEIN  
**County:** ROANE - 73  
**Sample Matrix:** Water  
**EFO:** Knoxville  
**Sampling Agency:** TDEC-DWS  
**Billing Code:** 327.39-12  
**Send Report To:** TDEC-DWS  
**Agency Invoiced:** TDEC-DWS  
**Priority Date:**  
**Date/Time Received:** 04/06/2009 12:40  
**Received By:** L Barrociere

**Field Determinations**

**pH:**  
**Chlorine, residual:**  
**Conductivity:**  
**Temperature:**  
**Dissolved Oxygen:**  
**Other:**  
**Flow:** CFS

TEST: Digestion Metals		METHOD: EPA 200.2				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Digestion Metals	04/07/2009				A Bass	4/7/2009

TEST: ICP-MS		METHOD: EPA 200.8				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Arsenic	U	µg/L	0.93	5	M Pattanayek	4/7/2009
Barium	22	µg/L	2.5	5	M Pattanayek	4/7/2009
Beryllium	U	µg/L	0.11	1	M Pattanayek	4/7/2009
Cadmium	U	µg/L	0.41	1	M Pattanayek	4/7/2009
Chromium	U	µg/L	2.0	5	M Pattanayek	4/7/2009
Cobalt	0.19J	µg/L	0.04	1	M Pattanayek	4/7/2009
Lead	0.17J	µg/L	0.10	1	M Pattanayek	4/7/2009
Manganese	31	µg/L	0.42	1	M Pattanayek	4/7/2009
Selenium	U	µg/L	1.3	5	M Pattanayek	4/7/2009
Thallium	U	µg/L	0.03	1	M Pattanayek	4/7/2009
Vanadium	12	µg/L	3.4	5	M Pattanayek	4/7/2009

TEST: Mercury		METHOD: EPA 245.1				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Mercury	U	µg/L	0.13	0.2	A Wilson	4/7/2009

J - Estimated value between MDL and MQL  
 MDL - Method Detection Limit  
 MQL - Method Quantitation Limit  
 U - Undetected

**Lab-Sample Number:** N00004362002  
**Project Name:**  
**Sample Description:** KINGSTON WTP  
**Sampler Project Name:**  
**Project Site No.:** FINISH  
**Station No.:**  
**Date/Time Collected:** 04/06/2009 10:10  
**Sampler's Name:** GEOFF KLEIN  
**County:** ROANE - 73  
**Sample Matrix:** Water  
**EFO:** Knoxville  
**Sampling Agency:** TDEC-DWS  
**Billing Code:** 327.39-12  
**Send Report To:** TDEC-DWS  
**Agency Invoiced:** TDEC-DWS  
**Priority Date:**  
**Date/Time Received:** 04/06/2009 12:40  
**Received By:** L Barrociere

**Field Determinations**

**pH:**  
**Chlorine, residual:**  
**Conductivity:**  
**Temperature:**  
**Dissolved Oxygen:**  
**Other:**  
**Flow:** CFS

TEST: Digestion Metals		METHOD: EPA 200.2				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Digestion Metals	04/07/2009				A Bass	4/7/2009

TEST: ICP-MS		METHOD: EPA 200.8				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Arsenic	U	µg/L	0.93	5	M Pattanayek	4/7/2009
Barium	19	µg/L	2.5	5	M Pattanayek	4/7/2009
Beryllium	U	µg/L	0.11	1	M Pattanayek	4/7/2009
Cadmium	U	µg/L	0.41	1	M Pattanayek	4/7/2009
Chromium	U	µg/L	2.0	5	M Pattanayek	4/7/2009
Cobalt	0.11J	µg/L	0.04	1	M Pattanayek	4/7/2009
Lead	U	µg/L	0.10	1	M Pattanayek	4/7/2009
Manganese	U	µg/L	0.42	1	M Pattanayek	4/7/2009
Selenium	1.7J	µg/L	1.3	5	M Pattanayek	4/7/2009
Thallium	U	µg/L	0.03	1	M Pattanayek	4/7/2009
Vanadium	12	µg/L	3.4	5	M Pattanayek	4/7/2009

TEST: Mercury		METHOD: EPA 245.1				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Mercury	U	µg/L	0.13	0.2	A Wilson	4/7/2009

J - Estimated value between MDL and MQL  
 MDL - Method Detection Limit  
 MQL - Method Quantitation Limit  
 U - Undetected



**Lab-Sample Number:** N00004362003  
**Project Name:**  
**Sample Description:** ROCKWOOD WTP  
**Sampler Project Name:**  
**Project Site No.:** RAW  
**Station No.:**  
**Date/Time Collected:** 04/06/2009 10:45  
**Sampler's Name:** GEOFF KLEIN  
**County:** ROANE - 73  
**Sample Matrix:** Water  
**EFO:** Knoxville  
**Sampling Agency:** TDEC-DWS  
**Billing Code:** 327.39-12  
**Send Report To:** TDEC-DWS  
**Agency Invoiced:** TDEC-DWS  
**Priority Date:**  
**Date/Time Received:** 04/06/2009 12:40  
**Received By:** L Barrociere

**Field Determinations**

**pH:**  
**Chlorine, residual:**  
**Conductivity:**  
**Temperature:**  
**Dissolved Oxygen:**  
**Other:**  
**Flow:** CFS

TEST: Digestion Metals		METHOD: EPA 200.2				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Digestion Metals	04/07/2009				A Bass	4/7/2009

TEST: ICP-MS		METHOD: EPA 200.8				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Arsenic	0.99J	µg/L	0.93	5	M Pattanayek	4/7/2009
Barium	28	µg/L	2.5	5	M Pattanayek	4/7/2009
Beryllium	U	µg/L	0.11	1	M Pattanayek	4/7/2009
Cadmium	U	µg/L	0.41	1	M Pattanayek	4/7/2009
Chromium	U	µg/L	2.0	5	M Pattanayek	4/7/2009
Cobalt	0.20J	µg/L	0.04	1	M Pattanayek	4/7/2009
Lead	0.40J	µg/L	0.10	1	M Pattanayek	4/7/2009
Manganese	28	µg/L	0.42	1	M Pattanayek	4/7/2009
Selenium	U	µg/L	1.3	5	M Pattanayek	4/7/2009
Thallium	U	µg/L	0.03	1	M Pattanayek	4/7/2009
Vanadium	12	µg/L	3.4	5	M Pattanayek	4/7/2009

TEST: Mercury		METHOD: EPA 245.1				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Mercury	U	µg/L	0.13	0.2	A Wilson	4/7/2009

J - Estimated value between MDL and MQL  
 MDL - Method Detection Limit  
 MQL - Method Quantitation Limit  
 U - Undetected

**Lab-Sample Number:** N00004362004  
**Project Name:**  
**Sample Description:** ROCKWOOD WTP  
**Sampler Project Name:**  
**Project Site No.:** FINISH  
**Station No.:**  
**Date/Time Collected:** 04/06/2009 10:50  
**Sampler's Name:** GEOFF KLEIN  
**County:** ROANE - 73  
**Sample Matrix:** Water  
**EFO:** Knoxville  
**Sampling Agency:** TDEC-DWS  
**Billing Code:** 327.39-12  
**Send Report To:** TDEC-DWS  
**Agency Invoiced:** TDEC-DWS  
**Priority Date:**  
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**Received By:** L Barrociere

**Field Determinations**

**pH:**  
**Chlorine, residual:**  
**Conductivity:**  
**Temperature:**  
**Dissolved Oxygen:**  
**Other:**  
**Flow:** CFS

TEST: Digestion Metals		METHOD: EPA 200.2				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Digestion Metals	04/07/2009				A Bass	4/7/2009

TEST: ICP-MS		METHOD: EPA 200.8				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Arsenic	U	µg/L	0.93	5	M Pattanayek	4/7/2009
Barium	26	µg/L	2.5	5	M Pattanayek	4/7/2009
Beryllium	U	µg/L	0.11	1	M Pattanayek	4/7/2009
Cadmium	U	µg/L	0.41	1	M Pattanayek	4/7/2009
Chromium	U	µg/L	2.0	5	M Pattanayek	4/7/2009
Cobalt	0.09J	µg/L	0.04	1	M Pattanayek	4/7/2009
Lead	U	µg/L	0.10	1	M Pattanayek	4/7/2009
Manganese	U	µg/L	0.42	1	M Pattanayek	4/7/2009
Selenium	2.2J	µg/L	1.3	5	M Pattanayek	4/7/2009
Thallium	U	µg/L	0.03	1	M Pattanayek	4/7/2009
Vanadium	14	µg/L	3.4	5	M Pattanayek	4/7/2009

TEST: Mercury		METHOD: EPA 245.1				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Mercury	U	µg/L	0.13	0.2	A Wilson	4/7/2009

J - Estimated value between MDL and MQL  
 MDL - Method Detection Limit  
 MQL - Method Quantitation Limit  
 U - Undetected